Amendment to the Claims:

Please amend the claims as follows:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): An isolated or recombinant nucleic acid comprising a sequence having at least 70% sequence identity to SEQ ID NO:1 and encoding a polypeptide having polymerase activity.

Claim 2 (currently amended): The isolated or recombinant nucleic acid of claim 28 [[1]], wherein the polymerase activity is retained at the temperature for four or more hours.

Claim 3 (currently amended): The isolated or recombinant nucleic acid of claim 1, comprising a sequence as set forth in SEQ ID NO:1, [[and]] or, sequences fully complementary thereto.

Claim 4 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence that hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1 [[of claim 1]] under conditions [[of high stringency]] comprising about 42°C in 50% formamide, 5X SSPE, 0.3% SDS, and 200 ng/ml sheared and denatured salmon sperm DNA, or, (b) a sequence fully complementary to (a).

Claim 5 (currently amended): An isolated or recombinant nucleic acid comprising (a) a sequence that hybridizes to a nucleic acid having a sequence as set forth in SEQ ID NO:1 [[of claim 1]] under conditions [[of moderate stringency]] comprising about 35°C in 35% formamide, 5X SSPE, 0.3% SDS, and 200 ng/ml sheared and denatured salmon sperm DNA, and a wash in a buffer comprising 0.1X SSC, 0.5% SDS for 15 to 30 minutes at between the hybridization temperature and 68°C, or, (b) a sequence fully complementary to (a).

Claim 6 (currently amended): The [[An]] isolated or recombinant nucleic acid of claim 4, wherein the hybridization conditions further comprise [[that hybridizes to a nucleic acid

of claim 1 under conditions of low stringency]] a wash for about 30 minutes at room temperature in a buffer comprising 150 mM $NaCl_2$, 20 mM Tris hydrochloride, pH 7.8, 1 mM Na_2EDTA, 0.5% SDS, followed by a 30 minute wash in fresh buffer at Tm-10°C.

Claim 7 (previously presented): An isolated or recombinant nucleic acid having at least 70% sequence identity to the nucleic acid of claim 1 as determined by analysis with a sequence comparison algorithm.

Claim 8 (currently amended): An isolated or recombinant nucleic acid having at least 80% sequence identity to the nucleic acid of claim 1 ~~as determined by analysis with a sequence comparison algorithm~~.

Claim 9 (currently amended): An isolated or recombinant nucleic acid having at least 90% sequence identity to the nucleic acid of claim 8 ~~1 as determined by analysis with a sequence comparison algorithm~~.

Claim 10 (currently amended): An isolated or recombinant nucleic acid having at least 95% sequence identity to the nucleic acid of claim 9 ~~1 as determined by analysis with a sequence comparison algorithm~~.

Claim 11 (currently amended): The isolated or recombinant nucleic acid of claim 7, [[8, 9, or 10,]] wherein the sequence comparison algorithm is FASTA version 3.0t78 with the default parameters.

Claim 12 (currently amended): An isolated or recombinant nucleic acid comprising (a) at least [[10]] 20 consecutive bases of a sequence as set forth in SEQ ID NO:1, (b) at least [[10]] 20 consecutive bases of a sequence having at least 70% identity to SEQ ID NO:1 and encoding a polypeptide having a polymerase activity, or (c) sequences fully complementary [[thereto]] to (a) or (b).

Claim 13 (currently amended): An isolated or recombinant nucleic acid having

at least 70% sequence identity to the nucleic acid of claim 12 as determined by analysis with a sequence comparison algorithm ~~or FASTA version 3.0t78 with the default parameters~~.

Claim 14 (currently amended): An isolated or recombinant nucleic acid having at least 80% sequence identity to the nucleic acid of claim 12 ~~13 as determined by analysis with a sequence comparison algorithm or FASTA version 3.0t78 with the default parameters~~.

Claim 15 (currently amended): An isolated or recombinant nucleic acid having at least 90% sequence identity to the nucleic acid of claim 14 ~~as determined by analysis with a sequence comparison algorithm or FASTA version 3.0t78 with the default parameters~~.

Claim 16 (currently amended): An isolated or recombinant nucleic acid encoding (a) a polypeptide having a sequence as set forth in SEQ ID NO: 2, or (b) enzymatically active fragments of (a)~~, and sequences substantially identical thereto~~.

Claim 17 (currently amended): An isolated or recombinant nucleic acid encoding a polypeptide comprising at least [[10]] 20 consecutive amino acids of (a) a polypeptide having a sequence as set forth in ~~selected from the group consisting of~~ SEQ ID NO: 2, or (b) enzymatically active fragments of (a)~~, and sequences substantially identical thereto~~.

Claims 18 to 27 (canceled)

Claim 28 (previously presented): The isolated or recombinant nucleic acid of claim 1, wherein the polypeptide has a polymerase activity at a temperature in a range from about 90°C to 113°C.

Claim 29 (previously presented): The isolated or recombinant nucleic acid of claim 1, wherein the polypeptide has a polymerase activity at a temperature up to 150°C.

Claim 30 (previously presented): The isolated or recombinant nucleic acid of

claim 1, wherein the polymerase activity comprises a DNA polymerase activity.

Claim 31 (currently amended): The isolated or recombinant nucleic acid of claim 1, wherein the polymerase [[activity]] comprises a 3'-5' exonuclease activity.

Claim 32 (currently amended): The isolated or recombinant nucleic acid of claim 1, wherein the polymerase [[activity]] lacks a 3'-5' exonuclease activity.

Claim 33 (currently amended): The isolated or recombinant nucleic acid of claim 1, wherein the polypeptide has a polymerase activity in [[high]] salinity conditions <u>from 5 mM to 200 mM salt</u>.

Claim 34 (withdrawn): A method for amplifying a nucleic acid comprising using a polymerase as set forth in claim 1.

Claim 35 (withdrawn): The method of claim 35, wherein the amplification reaction is a polymerase chain reaction (PCR).

Claim 36 (previously presented): The isolated or recombinant nucleic acid of claim 1, wherein the nucleic acid further comprises an expression vector.

Claim 37 (currently amended): The isolated or recombinant nucleic acid of claim <u>36</u> [[1]], wherein the expression vector comprises a viral particle, a baculovirus, a <u>phage</u> [[phase]], a plasmid, a cosmid, a fosmid, a bacterial artificial chromosome, a viral DNA or a P1-based artificial chromosome.

Claim 38 (withdrawn): A method for identifying functional polypeptide fragments or variants encoded by fragments of SEQ ID NO:1, and sequences as set forth in claim 1, that retain the polymerase function of the polypeptide of SEQ ID NO: 2, and sequences substantially identical thereto, said assay comprising:

utilizing a polypeptide encoded by a nucleic acid having at least 70% sequence identity to SEQ ID NO: 1, and sequences substantially identical thereto, or polypeptide fragment or variant encoded by SEQ ID NO: 1, to effect DNA polymerase activity in a PCR amplification at extreme high temperature for four or more hours and under conditions that allow said polypeptide or fragment or variant to function, and

detecting formation of an amplification product, wherein formation of the amplification product is indicative of a functional DNA polymerase polypeptide or fragment or variant.

Claim 39 (new): A method for making a polypeptide comprising:

(a) providing a nucleic acid having a sequence set forth in claim 1 or claim 12; and

(b) expressing the sequence, thereby expressing the polypeptide.

Claim 40 (new) The method of claim 39, wherein the nucleic acid further comprises an expression vector.

Claim 41 (new) The method of claim 39, further comprising inserting the nucleic acid into a host cell and expressing the sequence in the host cell.

Claim 42 (new) The method of claim 41, wherein the host cell is a prokaryotic or a eukaryotic cell.

Claim 43 (new): The method of claim 41, wherein the host cell is a yeast cell, a bacterial cell, a mammalian cell, a fungal cell, an insect cell or a plant cell.

Claim 44 (new): A method for producing a biologically active polypeptide and screening the polypeptide for enhanced activity by:

(a) introducing at least a first polynucleotide and a second polynucleotide, the at least first polynucleotide and second polynucleotide sharing at least one region of partial sequence homology, into a suitable host cell, wherein the first or second polynucleotide

comprises a sequence as set forth in claim 1 or claim 12;

(b) growing the host cell under conditions which promote sequence reorganization, resulting in a hybrid polynucleotide;

(c) expressing a hybrid polypeptide encoded by the hybrid polynucleotide of (b); and

(d) screening the hybrid polypeptide of (c) for biological activity under conditions which promote identification of enhanced biological activity.